

# CAREER PATHS IN TECHNOLOGY

## CISCO SYSTEMS/CISCO LEARNING INSTITUTE GENDER INITIATIVE

### WHAT IS ENGINEERING?

Engineering is the art of applying scientific and mathematical principles, experience, judgment, and common sense to make things that benefit people.

### COULD YOU BE AN ENGINEER?

Take this short survey! Circle Y for yes, N for no, and M for maybe.

Y	N	M	Have you ever taken something apart to try to fix it, or figure out how it works?
Y	N	M	Are you interested in how people solve problems or try to make things easier or faster?
Y	N	M	Have you ever made anything or thought of something that would help people do something better or easier?
Y	N	M	Do you like working with groups of people to get things done?
Y	N	M	Do you like figuring out how things work on a computer?
Y	N	M	Do you like to be challenged by a problem, to try to create a solution?
Y	N	M	Do you connect different things you know about the world to help solve a problem?
Y	N	M	Are you creative?
Y	N	M	Have you ever improvised to solve a problem? (Put something together unexpected?)
Y	N	M	Do you like synthesize ideas from people to create a solution?

If you answered Yes to any of the questions above, you might have the skills and drive that it takes to become an engineer. Some skills that engineers need to do their jobs include: creativity, resourcefulness, innovation, collaboration, and curiosity.

We invite you to challenge some myths and stereotypes about engineering, so that you can make your own decisions and know what options are available to you.

### WHAT DO WOMEN THINK OF ENGINEERING AND TECHNOLOGY?

Based on a survey of 208 women engineers and technologists at Cisco Systems in the Women in Technology Action Network:

94% would recommend a career in engineering and technology to other women/girls

What most motivates women to stay in the engineering and technology field includes:

- 79% The intellectual stimulation and challenge
- 61% Compensation (pay and benefits)
- 45% Opportunity to innovate/creative outlet
- 33% Having an impact on industry and community
- 27% Camaraderie and teamwork

62% say that there was not a time in school or in their career that they considered changing careers

## WHEN DO WOMEN FIRST START THINKING ABOUT TECHNOLOGY CAREERS?

36% of women surveyed said that a positive role model first interested them in a career in technology/engineering

Only 3% of women said that their strong aptitude/ability in math and science interested them in engineering and technology

44% of the women surveyed became interested in an engineering or technology career in high school, 24% became interested in college, and 18% in middle school or elementary school

## ARE THERE DIFFERENT TYPES OF ENGINEERS?

Yes! Engineers work in different fields and do different things, applying the same focus. Below is a table of some types of engineers and the resources/mediums they work with. Visit the websites listed in the cells below for more information on each type of engineering.

<b>Electrical</b>	Electrical engineering is the application of the laws of physics governing electricity, magnetism, and light to develop products and services for the benefit of humankind. <a href="http://www.discoverengineering.org/Engineers/electrical_engineering.asp">http://www.discoverengineering.org/Engineers/electrical_engineering.asp</a>
<b>Computer</b>	Computer Engineering is the design, construction, implementation, and maintenance of computers and computer controlled equipment for the benefit of humankind. <a href="http://www.discoverengineering.org/Engineers/electrical_engineering.asp">http://www.discoverengineering.org/Engineers/electrical_engineering.asp</a>
<b>Civil</b>	Designing the infrastructure of modern society (bridges, transportation, urban planning, and other structures needed for humans to live together) <a href="http://www.ce.ufl.edu/activities-ce/what_is/index.htm">http://www.ce.ufl.edu/activities-ce/what_is/index.htm</a>
<b>Chemical</b>	Discover and manufacture better plastics, paints, fuels, fibers, medicines, fertilizers, semiconductors, paper, and all other kinds of chemicals, by carrying out chemical reactions and purifications. They also work to protect the environment, inventing cleaner technologies, calculating environmental impacts, and studying the fate of chemicals in the environment. <a href="http://www.discoverengineering.org/Engineers/chemical_engineering.asp">http://www.discoverengineering.org/Engineers/chemical_engineering.asp</a>
<b>Manufacturing</b>	Manufacturing means making things. Manufacturing engineers direct and coordinate the processes for making things - from the beginning to the end. As businesses try to make products better and at less cost, it turns to manufacturing engineers to find out how. <a href="http://www.discoverengineering.org/Engineers/mfg_engineering.asp">http://www.discoverengineering.org/Engineers/mfg_engineering.asp</a>
<b>Mechanical</b>	Concerned with design, manufacture and operation of a wide range of components, devices, or systems: microscopic parts to gigantic gears ,more efficient heating, ventilation, refrigeration, laser technology, biomedical applications, automotive industry, computer-aided design, automation, robotics, predictive maintenance and reliability technologies <a href="http://www.discoverengineering.org/Engineers/mech_engineering.asp">http://www.discoverengineering.org/Engineers/mech_engineering.asp</a>
<b>Environmental</b>	Environmental Engineering is the study of ways to protect the environment from studying air pollution, land management, radiation protection, water supply, solid waste, hazardous waste management, toxic materials, wastewater management and public health. <a href="http://www.discoverengineering.org/Engineers/environmental_eng.asp">http://www.discoverengineering.org/Engineers/environmental_eng.asp</a>
<b>Industrial</b>	Industrial engineering is the application of engineering methods and the principles of scientific management to the design, improvement, and installation of integrated systems of people, materials, information equipment and energy. <a href="http://www.discoverengineering.org/Engineers/industrial_eng.asp">http://www.discoverengineering.org/Engineers/industrial_eng.asp</a>
<b>Materials</b>	Solve problems by relying on their creative and technical skills - making useful products in many forms from common and exotic materials <a href="http://www.discoverengineering.org/Engineers/ceramic_mat_eng.asp">http://www.discoverengineering.org/Engineers/ceramic_mat_eng.asp</a>
<b>Aerospace</b>	Design, analyze, model, simulate, and test aircraft, spacecraft, satellites, missiles, rockets, and other applications of objects moving within gases or liquids

## HOW DO PEOPLE START A CAREER IN ENGINEERING OR TECHNOLOGY?

IT courses in high school are a great way to begin your studies for a career in IT and to find out more about the field. Contact your local school counselor to find out if the Cisco Academy Course is offered at your school

### People who want to be engineers can:

Go to college and receive a degree in computer science, computer engineering, electrical engineering, physics, or math.

Go to a community or technical college and study for Associate degrees and technical certifications. They can be sales engineers and customer support engineers.

### People who want to work in technology, but not be engineers can:

Go to college to receive a degree in liberal arts, business, finance, and communications or marketing to be in technology sales, customer service, and marketing.

Go to a community college or technical college and study for an Associate degree and technical certifications. They can be sales engineers and customer support engineer.



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